

surveys in some localities in Kansas, Virginia, West Virginia and Texas. He summarized the results in *Geographical Review* in 1928.<sup>20</sup> In selecting sites for the soil erosion and moisture conservation experiment stations Bennett ordered similar erosion surveys. These surveys differed from later erosion surveys in that there were few categories of information gathered. They consisted mainly of the depth of soil and sub-soil losses along with measurements of erosional debris on footslopes and valley lands.<sup>21</sup>

should not only map erosion, but also suggest the possible and desirable uses of the land. In the section pertaining to the survey the authors averred that it was an "effort to account for the present conditions of the land in terms of slope and use as a basis for determining the best major use for lands of various soil types in the Lower Piedmont counties."<sup>26</sup> In this regard, it was the philosophical predecessor to the LCC.

The detailed survey covered five areas of 8,000 to 10,000 acres, plus a strip one-

the chief of the new service, selected areas near the experimental stations so that the information learned there could be of use, but there remained a need for a survey of individual farms as means of planning. The soil surveys being made by the Division of Soil Surveys in the U. S. Department of Agriculture were of little help in farm planning, according to Bennett, other than in identifying soil types. It was not on the scale needed, and had little or no information on slope, kind, and degree of erosion, and current land use.<sup>30</sup>

The newly formed Soil Erosion Service would conduct its own surveys for purposes of farm planning. They decided to use aerial base maps on a scale of one inch to 500 feet because of the detail desired in farm planning.<sup>31</sup> A Section of Conservation Surveys, headed at first by Bennett's collaborator from Georgia, Glenn Fuller, established procedures and issued instructions. The survey centered on four factors: (1) character and degree of erosion, (2) present land use or cover, (3) percent and class of slope, and (4) soil.<sup>32</sup> The information was expressed in the following order:

Erosion - Land Use

Slope - Soil

Thus, the hypothetical composite symbol,

3 7 R F' -- L

6B - 12

taken from *Procedure For Making Soil Conservation Survey* meant:

^

F' - wind accumulations 0 to 6 inches deep, covering less than one-third of the area delineated from which the topsoil previously has been removed and the accumulations are now partially stabilized

L - cultivated

6B - slope suitable for cultivated crops, with a dominant slope of 6 percent for area delineated

12 - Cecil sandy loam<sup>33</sup>

With this information in hand for individual farms it was then time to plan conservation measures. The task was to translate the complex symbols, denoting the physical conditions of the land, into recommendations of corrective land use. Concurrently, the farm planners had to explain the need for changes with the farmers. The result of these needs were first called "classes of land according to use capabilities."

The procedures for developing the capability classes were published in the *Soil Conservation Survey Handbook* of August 1939 under the name of E. A. Norton, who then headed the Physical Surveys Division.<sup>34</sup> But J. Gordon Steele, a staff member, recalled that the system was developed somewhat earlier and that the handbook represented the culmination of a team effort.

It came about between 1936 and 1936. We were all thinking, all the time, all of our soils men all over the country, about how to interpret these surveys for practical use. This grouping into

land capabilities came about



simplified, some people said over simplified, interpretation of technical details.<sup>35</sup>

The original system, and the explanations of its development and proposed use, are interesting in light of later revisions and uses of the land capability classification.

There were to be four classes of arable land, Roman numerals I thru IV. The classes indicated the most intensive tillage that could be used while permanently maintaining the soils.<sup>36</sup> The farmer could cultivate Class I without special practices, while Class II could be used with simple practices. Class III required complex or intensive practices, and Class IV was not recommended for continuous cultivation. Class V, because of topography, stoniness, erosion, poor drainage, or some other feature could not be used for even occasional cultivation. Classes VI through IX were reserved for grazing regions. The first three of these classes, VI through VIII, applied to grazing land that should be managed with an increasing degree of care; while Class IX was land unsuited to grazing.<sup>37</sup> In setting

a land classification conference, his soil surveyors did not necessarily see the system as permanent. They hoped "merely to establish a national basis of classification which would be good for a generation or two."<sup>40</sup>

In the field, technicians were to develop the tables with information to show where land should be placed in the capability classification based solely on physical characteristics. Then the SCS technicians, other state and federal agricultural agencies, and the local people were to develop tables showing the alternatives--cropping systems, practices, measures, and soil treatment--recommended for each class of land.<sup>41</sup> The Physical Surveys Division directed the field offices to complete the tables by the time the soil conservation survey was completed.<sup>42</sup>

In developing the tables, SCS technicians were to rely on their observations as well as the experience of farmers so as to combine "local experience with technical knowledge."<sup>43</sup> According to Norton the "experience of the local farmers and

Norton elaborated on the issue of further dividing the system. Subdivision of the major classes, based on "soil types, topography, or some other physical factor," would be advisable provided the recommendations for correction by crop rotations, practices, and measures could be made uniform. But he did not want further subunits on the maps. After all, the purpose was to simplify the information from the soil conservation surveys. When productive indexes were available, they could be included, but in tables, not on the maps.<sup>47</sup>

Norton and colleagues anticipated some of the coming criticism that the system was not attuned enough to the economics of farming. He admitted that there were "physical, economic, and social factors," involved in changes needed to maintain land in a permanently productive condition while, at the same time, using it for agriculture. But it was best to start with a classification based solely on physical conditions, against which the economic and social factors could be "correlated to make a complete land classification."<sup>48</sup> What this meant in practice was that the SCS technician and farmer worked out these matters in the farm conservation plan.

Major changes were not long in coming to the land capability system. In September 1940, SCS divided Class V into four classes, V thru VIII. Apparently over the objections of some eastern SCS officials, the western contingent won.<sup>49</sup> The range management specialists preferred their range surveys to the capability classes.<sup>50</sup> The revision reserved the first four classes for cultivatable land, and established three non-cultivable classes, V - VII, which could produce permanent vegetation for grazing and woodland under increasing limitations. The final class, VIII, did not produce vegetation for agriculture.<sup>51</sup> The earlier version had divided the land capability into classes for arable regions and classes for grazing regions. The revision attempted to establish a national system.

As with any new system there were some problems in implementation. When Norton's assistant, Roy Hockensmith, visited Kansas

and Nebraska in 1941 he found that there was "a tendency for the field men to map capability classes direct, rather than map the soil, slope, and erosion as it actually existed in the field." Such a procedure, or shortcut, has often been a temptation, here and abroad.<sup>52</sup> J. Gordon Steele told the author that someone was always coming up with the idea of expediting capability classification, by dispensing with detailed soil surveys on which to base the capability classification.<sup>53</sup> On the national level the staff tried to achieve uniformity of the capability classifications between regions--ensuring that the same soil type was placed in the same class in each region. The regional office had the same chore in regard to classification on the state and area level. According to Hockensmith, both control groups had problems achieving uniformity.<sup>54</sup>

Two events influenced the conservation surveying work--the rapid formation of conservation districts and World War II. After local areas began forming districts in 1936, the operations of the program expanded rapidly, while World War II removed experienced personnel. To meet the increased demand under these conditions, SCS changed its surveying techniques in 1943. They developed a new type map which would be immediately available. This map denoted "land units that have uniform management requirements." The Service claimed that little detailed information of value was lost and that they could speed up their surveying with this method. This survey, like the more detailed soil conservation survey, was used to classify land capabilities. The over 31,800,000 acres surveyed in fiscal year 1943 made for a total of more than 156,000,000 acres covered by detailed surveys. The surveys section and their workers, by October 1943, had completed the land capability tables and recommendations on more than 800 conservation districts.<sup>55</sup> Most of the districts in 1943 which had completed classification recommendations were in the southern states, where the early district movement was strongest.<sup>56</sup> The surveyors preferred to make surveys of whole sections of soil conservation districts, counties, or watersheds. Throughout the



course of the war increasingly they had to give up this concept and map individual farms for conservation planning.<sup>57</sup>

grouping in the three-tiered system. The capability unit could provide a great deal of interpretive information to the farmer. The



classes V, VI and VII, and (4) class VIII. SCS had started collecting the data and making the estimates in 1942.<sup>65</sup> Almost coincidentally with introducing LCC as a farm planning tool, SCS had added other objectives, inventorying resources and areawide planning.

By the late 1940s the Service was referring to its soil conservation surveying activities as the "National Land-Capability Inventory." In appealing to Congress, Bennett said the inventory should be completed as soon as possible. His rationale was that in a national emergency we would need full production--without harming the resources. The national inventory would supply the information needed in the effort.<sup>66</sup> Gradually in the late 1940s the land capability classification was proposed for uses other than planning on-farm conservation, most often for tax assessment. Roy Hockensmith, then head of the Soil Conservation Surveys Division, advised that LCC maps when "properly interpreted may serve as a

react under various uses--or "interpretations" as they were called. From this point of view the soil conservation survey was too attuned to one objective, or interpretation--land capability classification for farm planning. In Kellogg's view, by gearing the survey of soil properties to one purpose, the survey could fail to meet other needs or interpretations and another survey would be necessary.<sup>69</sup>

But the SCS surveys were more extensive than surveys completed under the Division of Soil Surveys, and were in fact the only surveys available for much of the country. When SCS's Division of Conservation Surveys was mapping 30 million acres in 1950, it had 700 surveyors compared to fewer than 100 surveyors in Kellogg's Division of Soil Surveys.<sup>70</sup>

The land grant college association had long called for the merger of the two surveys. Bennett's retirement made possible the merger of the two divisions into SCS with

sified some soils--the best in that state--as Class I, but they were directed to move these soils to a higher category because of climatic limitations.<sup>72</sup> The studies and work that went into Agricultural Handbook 210, *Land-Capability Classification*, issued in 1961, reconciled some of these discrepancies of classification. Also, the published soil surveys, after the merger of the two soil surveys, began placing the soil series in the LCC. This provided another means of striving toward uniformity in classifying soil series into only one class or subclass.

The attempt to create a uniform system illustrated one of the important points in the evolution of LCC. Originally the system allowed a great deal of flexibility at the local level. Local experience and observations were relied on in placing soils in a class and especially in developing conservation treatments. Simultaneously, the use of LCC for inventorying the need for further conservation work and the quality of land available created a desire that the system be uniformly applied throughout the country. These rather disparate objectives were difficult to reconcile to everyone's satisfaction.

Another trend noticeable in the evolution of LCC has been the constant refinement. Originally LCC was heavily weighted to cropland in humid areas. Through the 1940s, individuals and committees worked on problems of classifying rangeland, woodland, irrigated land, and dry farming areas. Also, the originators of the system were aware of problems in farming other than erosion hazards--other limitations which might cause a crop failure. Conceptually, these were included, but there was a tendency to try to refine LCC to better define the system in terms of limitations. Thus, there was the formal addition of the subclasses. Here again there was tension between differing objectives. When one considered the educational value of LCC in getting farmers to look at their land in terms of conserving it based on inherent capability, there was a desire to keep the system simple. At the same time, in attempting to create a national system, soil scientists tried to devise a system that

would provide guidance for the classification of all soils throughout the country.

In the field, land capability classification was well received and well suited to its intended purpose of serving as a guide to on-the-farm rearrangement of fields and crops as well as the adoption of conservation practices. The terminology of LCC was well understood by people in the soil conservation profession. Discussions of prime farmland and land subject to erosion were often couched in terms of the LCC. Therefore it was understandable that the subclasses within LCC were proposed for the 1985 farm bill to designate erodible land.

But the LCC is not the system preferred by some professional soil conservationists, especially soil scientists. Briefly stated, their position is that the LCC is not the best system for identifying highly erodible soils. The contention is that LCC neither identifies particular soil characteristics such as erodibility, nor provides a means of measuring those soil properties. In the LCC, it is the combination of soil characteristics, and more specifically the interaction among those properties, that results in the placement of a particular soil in a class or subclass. The classes identify these combinations of limitations for use, not specific limitations such as erodibility.

Their other argument is that they have a better method. Beginning with the establishment of the erosion or conservation experiment stations in the early 1930s, USDA began gathering quantifiable information on the factors involved in erosion. By 1956 there were 7,000 plot-years and 500 watershed-years of basic data available.<sup>73</sup> The information made possible the development of the Universal Soil Loss Equation which, in the words of one of its advocates, "brought systematic quantification to farm planning," for soil conservation.<sup>74</sup> The six factors--rainfall erosiveness (R), soil erodibility (K), slope length (L), slope steepness (S), cropping and management practices (C), and supporting conservation practices (P)--provide a prediction

of expected soil loss, and indicate a set of alternative conservation measures to reduce soil loss.<sup>75</sup> As in the case of LCC, the system was developed mainly for the purpose of planning conservation measures, but with the possibility of measuring the influence of the various factors. For use in the 1985 Farm Bill, a study team of SCS and Economic Research Service experts proposed an erodibility index composed of the RKLS factors and a T factor which indicates permissible soil loss while maintaining productivity.

Representatives of some farmers, especially the National Association of Conservation Districts (NACD), favor retaining the land capability classification for identifying highly erodible lands. Their reasoning is that LCC is well known to USDA agencies and to farmers. They fear that the mathematical formula in the erodibility index will be understood by few, even in some USDA agencies which will have to carry out provisions of the farm bill. In the words of Charlie Boothby, Executive Vice-President of NACD, "the Universal Soil Loss Equation is not universally understood."<sup>76</sup> Also the implementation of the sodbuster and conservation reserve, if they become law, will not please every landowner. In such cases, it is argued, having a system which the land owner understands will be preferable. Also, they are concerned about who will make the calculations under the erodibility index for all the farm and ranch land involved.

However the matter is resolved, the attempt to identify erodibility has illustrated once again the nature of government's use of science, in this case soil science, in carrying out its authorities. From the 1930s, USDA, and especially SCS, has needed a means of making judgements about the causes of soil erosion in order to operate programs designed to conserve soil. Government funds were put into the scientific effort to devise a system. The result has been the land capability classification and the universal soil loss equation. While precision in

proposed as a means of making precise measurements there were of course differences of opinion about their suitability.



**Endnotes**

<sup>1</sup> For a discussion of the various means of measuring erodibility see Donald E. McCormack and Ralph E. Heimlich "Erodible Soils: Definition and Classification," A and P Staff Report No. 85-2 (Washington, DC: Soil Conservation Service

<sup>13</sup> Ibid., p. 590.

<sup>14</sup> Bennett to J. Russell Smith, November 7, 1932, Bennett Correspondence, RG 114, Records of the Soil Conservation Service, National Archives. Hereinafter, the abbreviations RG for record group and NA for National Archives will be used.



- 26 Hartman and Wooten, *Georgia Land Use Problems*, p. 91.
- 27 Fuller, "Charting the Effects of Erosion," p. 495.
- 28 Hartman and Wooten, *Georgia Land Use Problems*, pp. 94-96.
- 29 Ibid., p. 122.
- 30 Bennett, "Adjustment of Agriculture to Environment," p. 186.
- 31 For an example of a published farm planning map taken from aerial surveys, see *Soil Erosion: A Critical Problem in American Agriculture* (Washington, DC: Government Printing Office, 1935), pp. 36-39.
- 32 Glenn L. Fuller, *Procedure for Making Soil Conservation Surveys: Outline No. 4* (Washington, DC: Government Printing Office, 1935), p. 12.
- 40 E. A. Norton, "Land Classification as an Aid in Soil Conservation Operations," *The Classification of Land*. Bulletin 421. (Columbia, Missouri: Agricultural Experiment Station, December 1940), p. 298.
- 41 Field Memorandum 848-A, April 10, 1940, Roy Hockensmith Papers, University of Wyoming, Laramie; and District Circular 17, February 8, 1940, SCS offices Washington, DC.
- 42 Norton, *Soil Conservation Survey Handbook*, p. 15.
- 43 Norton, "Land Classification as an Aid," p. 296.
- 44 Ibid., pp. 296-297.
- 45 Norton, *Soil Conservation Handbook*, p. 14.
- 46 Ibid., p. 12.



- 56 R. D. Hockensmith and J. G. Steele, (Ph. D. diss., Harvard University 1958), p. 362. The Gardner thesis has been extremely



## **Eroding the Color Line: The Soil Conservation Service and the Civil Rights Act of 1964**

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by Douglas Helms  
National Historian, Soil Conservation Service

As a young graduate in agriculture from North Carolina A&T University in the depression year of 1938, John Maynard Jones had difficulty finding a job in his discipline. Teaching agriculture in high school was one possibility. Working for the state extension service was another

Service in the South who worked with black farmers. This paper describes the first Blacks working in the Soil Conservation Service and examines the efforts in response to the Civil Right Act of 1964 to expand equal opportunities for employment as well as equal access of minority farmers



some Washington conflict with the state extension services, a cooperative venture between the U.S. Department of Agriculture and the states, especially the land-grant universities. State extension services were fairly autonomous with few nationally directed mandates. Nonetheless, most of the extension services in the southern states made some attempt to hire trained black agriculturalists to work with black

opportunities for employment of the black enrollees. Richard Moody was the exception. The enrollees of Moody's company learned to lay out and build terraces, to seed and fertilize pastures, to run contour lines for stripcropping and contour rows, as well as other vegetative, mechanical, and engineering measures. It was here that Moody says he both acquired an interest in and knowledge about soil conserva-



vation Service. One of the early demonstration projects, Duck Creek, in Smith County, had included some black-owned farms. In fact the first cooperators to sign an agreement with the Soil Erosion

eastern regional office at Spartanburg, South Carolina, said that in nine states in his region--excluding Texas, Arkansas, and Oklahoma--there were eight full-time technicians and five full-time aides working



Again Bennett planned to discuss the matter with the regional directors. "I agree with Barnett that we should try to have some negro technicians, and this is a matter that must be taken up with the Regional Directors during the summer meeting."<sup>13</sup> Barnett's arguments about the amount of land controlled by Blacks would have appealed to Bennett, who had elements of simplemindedness endemic to crusaders. The effect of land concentration on SCS program delivery was becoming obvious to the SCS people and raised the question of objectives. Was it the number of farmers assisted that was important, or was it the amount of land covered by conservation measures? The emphasis in the popular press and the newspapers in the last few decades on the loss of small farms has disguised to a certain extent the degree of concentration of farm land that existed in earlier decades. The concern was not strictly related to black farmers, but it certainly applied to them. In 1951, 43.5 percent of the farms SCS assisted were less than 100 acres, while only 7.6 percent were over 500 acres. Yet the conservation farm plans on the former group totalled 50 million acres while the land in the latter

University before being drafted into the Army. After the war he returned to Tuskegee for his degree in agriculture. He was in his second year of teaching vocational agriculture at Bernice, Louisiana, when the district supervisor of vocational agriculture approached him to replace Fasen as the work unit conservationist at Grambling College.

When Blankenship took the job in January 1951, he had two technicians and a clerk to assist him in working a six-parish area around Grambling. Unlike many of the white conservationists, Blankenship received no structured training at other SCS field offices before starting work. He received most of his training from the SCS technicians who travelled out from the area and regional offices to assist local field staff with aspects of engineering, agronomy, forestry and other matters. He recalled that engineer Robert Wilder was particularly helpful in training him in laying out terracing, ponds, and writing conservation plans for the farm. There was also a considerable amount of woodland improvement and pasture improvement to be done as fields in row crops were being converted to



was responsible for increasing minority A.D. 1911-1912

few farmers knew about the aid. Masingale recalled,

It was an educational process to most of the black farmers. In the first place, a lot of them didn't know what was available through the ASCS (Agricultural Stabilization and Conservation Service) office in cost-sharing. You had to explain that to them. Many of them were willing to carry out the projects and do the drainage, but they didn't have the money, or were too much in debt to get it.<sup>20</sup>

At least Masingale believed the reason for hiring black soil conservationists in Louisiana, few as they were, was to try to reach people who were being ignored. He believed that:

...the SCS people in the country would work with those people who could do the drainage, or get the terraces made, or plant the pastures--the elite black farmers who understood and they had money or could get it. So they worked with them. They wouldn't lose time with the fellow that you had to court and explain to him, really explain to him. Because he did not know about ASCS. Many of them didn't. We've had to take them in. They were scared to go in the office. We've had to take them in and apply. Let them see that you could apply and then get it.<sup>21</sup>

He continued his work in Louisiana until 1961 when he was asked to transfer to the SCS state office at Nashville, Tennessee. There he was to replace James Hughes, who had moved to the national SCS office in Washington, D. C.<sup>22</sup>

Hughes had been selected to work on a program to increase black employment in the agency in the early 1960s. He probably came to the attention of the national office of SCS because of his work on the Johnson Creek Watershed, where the cooperation of black farmers was needed in order for the project to succeed. This watershed, one of the many projects SCS worked on under the Watershed Protection and Flood Prevention Act of 1954, was one of the first to be studied for its effects on the incomes of the residents. Conservation education leader Martha Munzer had high-lighted the act in her book, *Pockets of Hope*. After his work on the watershed, Hughes moved to the SCS state office in Nashville, where he worked on programs to improve service to minorities in the state. There, the state conservationist in Tennessee, J. Ralph Sasser, was the most active of the state conservationists in the South in promoting more services to black farmers. Hughes moved to Washington to help in the effort to provide equal opportunity in hiring and programs.

President John F. Kennedy placed Vice-President Lyndon B. Johnson in charge of the President's Committee on Equal Employment Opportunity (PCEEO).<sup>23</sup> Johnson insisted that in contracting and employment, the federal government should not merely follow a negative nondiscriminatory policy. Rather, they should take affirmative action to ensure participation by minorities. The committee commenced collecting statistics on minority employment in the government. Former Secretary of Agriculture Orville Freeman recalled a telephone call late one night in early 1961:

The telephone rang and it was then Vice President, Lyndon Johnson, and he said to me very sternly that looking over the records he was not at all satisfied with the minority representation in the Department of Agriculture and that it was about time that I got busy and did something about it.<sup>24</sup>



But USDA continued to have the reputation of being the slowest of the cabinet departments to hire blacks. Of the people in the department in a position to have an impact, the Administrative Assistant, Secretary Joseph M. Robertson, weighed in on the side of activism. Robertson believed the department would make little progress as long as routine procedures were followed. He advised the Secretary:

The inertia in this area is unbelievable until you see it at first hand. We continue to live in a pattern of culture that has been developed over the last century, and to get us out of this is going to take, in my opinion, direct involvement by the Secretary of Agriculture and by his agency heads and that this program must be given a different order of priority from sugar, or rural areas, or any other commodity. If not

opinion that it was highly important that positive moves to employ Negroes not be limited to one agency alone."<sup>27</sup>

At the urging of the new president, Lyndon Johnson, Congress passed a major Civil Rights Act in 1964. In addition to placing greater emphasis on equal employment in hiring, the act also focused on the equality of participation in government services, by stating that: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."<sup>28</sup> Among government departments, elimination of discrimination had required special emphasis in the Department of Agriculture. Through the years the transfer of scientific and technical information, the administration of price-support, acreage controls, voluntary soil conservation activities, and other programs, and even the use of regulatory type activities had relied on cooperation and acquiescence at the state

reported one plan for every four black farm owners. The study also revealed that hiring black soil conservationists to seek out black farmers had increased participation in those counties. The study included one anomaly: Madison County, Mississippi, where the white soil conservationist had prepared conservation plans for 54 percent of the white-owned land and 77 percent of the black-owned land.<sup>30</sup> While accumulating the information, SCS found that of the Blacks who had conservation plans "a satisfactory number were applying conservation practices." The agency believed it an indication that greater efforts to reach Blacks would result in increased conservation farming in the South.<sup>31</sup> Despite the inequities, the commission found that SCS had been making efforts to recruit more black professionals and had been working toward eliminating segregated offices. The larger task remained, to provide equal opportunity in employment as well as ensuring that "the quantity and quality of service available to Negro landowners [was not] dependent upon the number of Negro staff in a given area."<sup>32</sup>

Soon after the passage of the Civil Rights Act, agencies were being required to make reports on progress. The Inspector General of USDA studied SCS operations in the South. SCS could quickly end the segregation in offices. They undertook a study to determine whether Blacks were being promoted as rapidly as whites. Such actions only involved internal decisions. Others actions involved the good will of the agency's clientele--the farmers. Black soil conservationists were no longer to be restricted to working with black farmers. Black landowners were not to be restricted to receiving help only from blacks. The service was to try to make sure that the black SCS employees participated in meetings of conservation districts as did their white counterparts. While there had been exceptions to all these cases before the Civil Rights Act, Administrator Donald A. Williams conceded the situation needed to be corrected. He was soon asking state conservationists in the South to report on progress. Williams also reminded the field that the attitude of the white staff in SCS

field offices in the rural counties was crucial to accomplishing integration in work assignment and work with districts by smoothing the way.<sup>33</sup>

The other major thrust of the Civil Rights movement was, of course, to increase employment of Blacks in SCS. With Carl Lindstrom and Jim Hughes of the personnel section of SCS taking the lead, the agency had a short-term and long-term goal. Short-term goals involved quickly increasing the number of black employees through recruitment and working with the 1890 land-grant schools to suggest easily achieved curriculum changes that would quickly increase the number of qualified applicants for jobs in SCS. The longer-term goal in Lindstrom's strategy was to work with the 1890 universities on curriculum changes involving major realignment in course content, to the end that graduates would be well qualified for professional positions.<sup>34</sup> The curriculum work was crucial because most of the jobs with promotion potential in SCS required college credits in the agricultural and natural sciences. The heads of field offices, the soil conservationists, had college training in agriculture. Through tradition, many of the jobs in personnel, budget, finance, and other administrative support were filled by people with degrees in agriculture and who had worked at the field level as soil conservationists.

In addition to the people at the SCS state office, Carl Lindstrom and James Hughes travelled to the 1890 schools advising them on the changes needed in curriculum and recruiting students for the student-trainee program. Some of the small number of Blacks who already worked for the SCS in the South also recruited, while themselves serving as role models for those who wanted to pursue a career in agriculture. The program had a marked effect on the colleges of agriculture and SCS. Grant Seals, who went to Florida A&M University as Dean for Agriculture and Home Economics in 1969, recalled the impact:

Upon my arrival, I found the summer SCS program

already operative...The first few participants from FAMU had been agricultural education or agronomy majors. Upon the advice of SCS, FAMU had employed a soil scientist to teach soil survey and any other needed courses to constitute qualifying agronomy graduates. Students were recruited in high school and were hired out each summer thereafter as trainees learning about soils. They were also earning moneys for their tuition. As our recruiting program got stronger for the School (of Agriculture) as a whole as well as for soil science, the number of SCS enrollees increased. At its peak, we must have had nearly fifty students in all four years of training. We were graduating an average of 8-10, half of whom were then recruited by the Forest Service which hadn't invested anything in the program. But we still placed at least half to two thirds in SCS.<sup>35</sup>

agency in USDA could, by offering job opportunities, cause these dramatic increases in student enrollment demonstrated the impediment that lack of job opportunities had been to the development of the agricultural curricula at the 1890 schools.

From a very low base, the number of black employees grew. There were 83 Blacks on the rolls in 1962, 94 in 1963, 146 in 1964 and 368 in 1965. As of September 30, 1990, there were 12,821 permanent full-time employees of the Soil Conservation Service. Black employees numbered 926 of whom 627 were male. Of greater importance, 409 of the black males were in "professional" job series, where there is a greater chance for advancement in the organization. Another 132 Black males are in the "technical" jobs where there is a chance for advancement if some education goals are met. The numbers for females are 43 professional, 63 administrative, 54 technical, and 117 clerical. Thus the number of black females is significantly lower than the percentage of black females in the labor force. Like most other government agencies, the Soil Conservation Service has an equal employment program to try to address problems such as the overconcentration of black females in clerical jobs. The increase in black employment from the days when



sey, Nevada, and Wisconsin. A University of Arkansas-Pine Bluff graduate, Pearlle Reed, was the Deputy State Conservationist in Arkansas before moving on to the state conservationist's position, first in Maryland and currently in California. At the national office, Sherman Lewis and Platter Campbell have been division directors. Lewis is currently an assistant chief. Jacqueline Sutton was the deputy associate chief for administration.

In summary, the few Blacks who worked for the Soil Conservation Service in the 1940s and 1950s served their clientele well by focusing on those who were not being reached. To take one example, John Jones recalled that when he went to work in Anson County, North Carolina there were a few Blacks, those with fairly large farms, who were cooperators with SCS. But some of the black farmers in the northwest corner of the county around Burnsville and

<sup>2</sup> Allen W. Jones, "The South's First Black Farm Agents," *Agricultural History* 50 (October 1976): 636-44; and "Thomas W. Campbell: Black Agricultural Leader of the New South," *Agricultural History* 53 (January 1979): 42-59; Wayne D. Rasmussen, *Taking The University to the People: Seventy-five Years of Cooperative Extension* (Ames: Iowa State University Press, 1989), 7, 52, 68, 72, and 103.

<sup>3</sup> Douglas Helms, "The Civilian Conservation Corps: Demonstrating the Value of Soil Conservation," *Journal of Soil and Water Conservation* 40 (March-April 1985): 187.

<sup>4</sup> Interview with Richard A. Moody, Tyler, Texas, May 17, 1990.

<sup>5</sup> Louis P. Merrill, *Soil and Water Conservation in the Western Gulf Region: Part II, The U. S. Soil Erosion Service, Project No. 20, Duck Creek, Smith County, Texas*

<sup>9</sup> Hugh Hammond Bennett to All Regional Directors, August 22, 1950, HHB Papers, Folder 22/3.

<sup>10</sup> Ibid.

<sup>11</sup> My former boss at the National Archives, Harold T. Pinkett tells me that he met Barnett's widow at an Association for Afro-American History meeting. She told him that Barnett was one of the "dollar-a-year" advisors to the three successive secretaries of agriculture, Henry A. Wallace, Claude Wickard, and Ezra Taft Benson.

<sup>12</sup> Claude A. Barnett to Hugh Hammond Bennett, May 5, 1951, HHB Papers, Folder 22/3.

<sup>13</sup> Hugh H. Bennett, Memorandum for discussion at Regional Director's Meeting, June 7, 1951, HHB Papers.

<sup>14</sup> Ibid.

<sup>15</sup> Study of Blacks in SCS in 1964, Records relating to civil rights, History Office, Soil Conservation Service, Washington, D.C.

<sup>16</sup> Interview with Leon Blankenship, Alexandria, Louisiana, May 15, 1990.

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

<sup>19</sup> Donald Holley, *Uncle Sam's Farmers: The New Deal Communities in the Lower Mississippi Valley* (Urbana: University of Illinois Press, 1975), 112-13.

<sup>20</sup> Interview with Obie Masingale, Baton Rouge, Louisiana, May 12, 1990.

<sup>21</sup> Ibid.

<sup>22</sup> Study of Blacks in SCS in 1964, Records relating to civil rights, History Office, Soil Conservation Service, Washington, D.C.

<sup>23</sup> Hugh Davis Graham, *The Civil Rights Era: Origin and Development of National Policy* (New York: Oxford University Press, 1990), 38-40.

<sup>24</sup> Orville Freeman, Oral History, February 14, 1969, p. 2, Lyndon B. Johnson Presidential Library, Austin, Texas.

<sup>25</sup> Joseph M. Robertson to Orville Freeman, June 6, 1963, Folder "Civil Rights," General Correspondence, Record Group 16, Records of the office of Secretary of Agriculture, National Archives and Records Administration, Washington, D.C. Hereinafter the abbreviations GC, RG, and NARA will be used.

<sup>26</sup> Orville Freeman to Don Williams, July 11, 1963, Folder "Civil Rights," GC, RG 16, NARA.

<sup>27</sup> Donald A. Williams to Orville L. Freeman, June 24, 1963, Folder "Civil Rights," GC, RG 16, NARA.

<sup>28</sup> Secretary's Memorandum No. 1560., Implementation of Civil Rights Act of 1964, July 10, 1964, Folder "Civil Rights," GC, RG 16, NARA.

<sup>29</sup> For a recent and important interpretation of USDA working relationships, see David E. Hamilton, "Building the Associative State: The Department of Agriculture and American State Building," *Agricultural History* 64 (Spring 1990): 207-18.

<sup>30</sup> *Equal Opportunity in Farm Programs: An Appraisal of Services Rendered by Agencies of the United States Department of Agriculture: A Report of the United States Commission on Civil Rights* (Washington, D.C.: GPO, 1965), 85-89.

<sup>31</sup> Ibid., 89.

<sup>32</sup> Ibid., 89.

<sup>33</sup> Donald A. Williams to State Conservationists, Advisory LEG-10, March 17, 1965, Civil Rights Records, History Office, Soil Conservation Service, Washington, D.C.

<sup>34</sup> Carl A. Lindstrom, Memorandum, Equal Employment in SCS, July 15, 1965, Civil Rights Records, History Office, Soil Conservation Service, Washington, D.C.



<sup>35</sup> Grant Seals to the author, September 12, 1990.

<sup>36</sup> Hezekiah Jackson, Dean of the College of Agriculture, to Donald A. Williams, October 20, 1965. Civil Rights Files, History Office, Soil Conservation Service.

<sup>37</sup> Interview with John Maynard Jones, September 29, 1990.

## SCS and '1890' Graduates: Of Mutual Benefit

Reprinted from *Soil and Water Conservation News* 11, no. 2 (July-August 1990): 8-9.

by Douglas Helms,  
National Historian, Soil Conservation Service

The number of black employees in the Soil Conservation Service has increased at varying rates over the years. A few were hired in the 1940s, primarily to work with black landowners. Greater numbers joined SCS following civil rights legislation in the 1960s.

Over the years, many of the blacks who have worked for SCS have been children of landowning black farmers. Blacks have owned farmland in the United States since before the Civil War, although the number increased fairly dramatically toward the end of the 19th century.

Though a distinct minority, some free blacks in the South acquired land before the Civil War. By 1830, some 647 rural free blacks in Virginia had acquired land. On the eve of the Civil War in 1860, there were 1,316 black farmers and rural landholders in Virginia who had property valued at \$369,647. Maryland's rural black landowners numbered 519 in 1830 and 2,124 in 1860.

Despite the financial obstacles and the resistance to selling land to blacks, they continued to acquire land after the Civil War. Between 1870 and 1890, in the upper Southern States of Kentucky, Maryland, Missouri, and Virginia, the number of black landowners increased from 6,859 to 39,859. One out of three black farmers

private colleges. But the schools called for in 1890 in the second Morrill Act constituted State-supported higher education for blacks in much of the South, because the first Morrill Act had benefited whites only.

Many of the blacks who have worked in the Soil Conservation Service are products of this environment. They are graduates of the 1890 Institutions and Tuskegee University, children of the landowning farmers.

During the 1940s, SCS hired a limited number of blacks to work in counties with large populations of black landowners. Bishop Holifield held such a position in Florida, as did John Jones in North Carolina, Howard Hardy in South Carolina, and Maurice Godley in Virginia.

In Texas, Richard Moody, a Prairie View A&M graduate, went to work for SCS in Tyler. In addition to working with black farmers in Smith County, Moody and his staff helped train additional blacks as soil conservationists to work in other parts of Texas. One of the trainees, Floyd Sanders, opened an SCS office at Jefferson, Texas, where his staff assisted black landowners in the Marion-Cass Soil Conservation District.

In 1951, SCS established the first of two offices in Louisiana to work with black farmers. Leon Blankenship and his staff at SCS's Grambling College office worked



ending segregation. The Federal Government began emphasizing equal opportunity in employment and equal access to Government services.

The establishment of the President's Committee on Equal Employment Opportunity in 1961 spurred Federal agencies to hire additional qualified blacks. SCS in Tennessee and North Carolina signed up a few trainees from "1890" universities in 1963. Also in 1963, James Hughes, from Tennessee, became special assistant on intergroup relations at SCS national headquarters.

In response to the Civil Rights Act of 1964, SCS closed segregated offices and moved swiftly to eliminate segregation in work assignments, which had been deemed discriminatory.

A 1965 policy stated that "SCS personnel who are members of minority groups are not to be restricted to working solely with minority group landowners and operators." Furthermore, "SCS minority group employees will meet with district governing bodies in their regular meetings."

The United States Commission on Civil Rights issued a report in 1965 on the programs of the U.S. Department of Agriculture. Of 6,100 SCS employees in 16 States in the South, the Commission found that 40 were black and only about half were in job categories considered professional.

SCS's strategy to hire more black professionals included signing up student trainees to work in the summer. The students could determine if this was the type of career they wanted, and could tailor college courses accordingly. The number of SCS student trainees increased in the years immediately following the Civil Rights Act, from 9 in 1965 to an estimated 60 in 1968.

SCS also hired "1890" university professors for the summer to familiarize them with the agency's work. SCS hoped the professors would incorporate their newly gained knowledge in the next year's courses

and encourage students to undertake careers with SCS.

During the 1960s, SCS staff met with college presidents and officials and urged them to increase course offerings in soil science, one of the main requirements for qualifying as a soil conservationist.

With the prospect of employment by SCS and other agencies and the option of additional courses in agricultural fields, enrollment in agricultural degree programs increased. For example, the 1965 freshman class at Florida A&M included 40 students in the School of Agriculture--twice the enrollment in 1964.

How much or how little progress has been made toward fulfilling the promise of equal opportunity in both the Federal Government and society can be debated. The graduates from the 1890 Institutions and Tuskegee University who joined SCS in the 1960s have now spent more than 20 years with the agency. During that time, they have served at practically all levels in SCS.

More importantly, the racial makeup of the corps of soil conservationists in SCS is far different than it was on the eve of the civil rights movement.

## Women in the Soil Conservation Service

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by Douglas Helms,  
National Historian, Soil Conservation Service

"Tama Jim" Wilson, who served for the longest tenure of any Secretary of Agriculture (1897-1913), found the importuning for jobs in the department the most vexing part of the job. "Finding places for deserving women on the request of Senators who righteously plead their cause is the greatest difficulty I meet with," he wrote to a senator.<sup>1</sup> He found the situation of the unmarried women particularly distressing

Bureau of Chemistry hired a number of female chemists. Others found employment in the Bureau of Home Economics where the bureau chief, Louise Stanley, was the highest paid and highest ranking woman scientist in the federal government. But Stanley was the exception as other women scientists did not have the opportunity to advance in rank and remuneration.<sup>4</sup>



relied, in part, on competent professional secretarial and clerical work.

During the rapid initial growth of the organization, everyone felt the pressure to make a favorable impact so that the work would continue. Frances Hershberger recalled the early office work in Maryland. "[I] think all of us secretaries felt we helped to get the project for SCS in Maryland off to a good start. We worked diligently from 8 to 5, & for the first few months worked overtime. We not only worked 5 full days a week but also 1/2 day on Saturday."<sup>7</sup> Though the early secretarial staff may not have worked personally on conservation practices on the farm, they could enjoy the sense of group accomplishment. Estella B. Williams started working in Waynesboro, Pennsylvania, in 1935 and later transferred to Maryland. At the age of 91 (in 1989) in a retirement home in Hagerstown she wrote, "I still love to go through the country and see the strip cropping etc."<sup>8</sup>

Like their male counterparts, quite a number of the women who found employment in the early days made a career of the work. Secretaries throughout the organization have often been invaluable in providing continuity in cases where heads of office changed frequently. They know the organization and the key conservation partners in state agencies, conservation districts, and other areas.

Some states did not have clerks for districts; the area clerk would travel to the districts to do the work. Marjory A. McTavish, the area clerk at Butte, Montana, made work trips to each of 11 district offices four times a year. Now, when she speaks to groups and encourages young women to consider a career in the federal government, she uses a story to illustrate some of the attitudes that were all too prevalent about women's role in the federal government in the 1960s. "I was making a three-day trip, spending a day at Three Forks, then Townsend, and then Helena. I stopped in East Helena for gasoline. Now--this is in the early 1960s, and I am driving an olive green government sedan with decals on the door saying USDA-SCS and displaying

government license plates. I drive into this station, roll down the window as an old fellow, the attendant, approaches the car, and I say, 'Fill it up, please.' He doesn't answer, just looks at me--then he proceeds to walk around the car. When he gets back to the open window, he says, 'Does the government let women drive their cars?'"<sup>9</sup>

In addition to the Soil and Water Conservation Society, SCS also has had a long association with the conservation districts and their national organization, the National Organization of Conservation Districts. Women have also played a large part in this cooperation--probably none more so in the formative period than Mrs. Ellen Cobb of Spartanburg, South Carolina. While a secretary with the Soil Conservation Service, she began helping with the meetings of South Carolina's state association of conservation districts. By 1941 she regularly attended and kept notes at the meetings and assisted with the growth of the organization.<sup>10</sup> E. C. McArthur, the first head of the state association, led an effort to organize a national meeting of district officials. Mrs. Cobb went to the meeting in Chicago in 1946 when the National Association of Soil Conservation District Officials was organized. Later Mrs. Cobb recalled the mood of the meeting that was so instrumental in the history of the conservation movement in the United States. It "was hot as Hades when those 17 men, plus McArthur, plus little me, sat around a table in the Morrison Hotel, and discussed the merits of a national organization, and I won't deny that some of them were doubtful; but after much talk, that great leader McArthur sold his idea."<sup>11</sup> The group authorized McArthur to hire Mrs. Cobb as the Executive Secretary. McArthur died in an automobile accident in 1947, and Kent Leavitt of Millbrook, New York, was elected as the president. Mrs. Cobb was clearly the most knowledgeable person about McArthur's plans for the infant organization. Mrs. Cobb moved to Millbrook and lived in a rented house which served both as her home and the office of the National Association of Soil Conservation Districts. With the organization on a better footing, Mrs. Cobb

resigned in June 1948 and returned to Spartanburg.<sup>12</sup>

Although most of the women in SCS during the 1930s and 1940s were in the secretarial and clerical fields, there were some women in the sciences and technical specialties. At the urging of the Science Advisory Board, the Soil Erosion Service set up a Climatic and Physiographic Division to do research in climate, ecology, geomorphology, and erosion history. Within the division Lois Olson headed the Erosion History Section, whose staff researched maps, documents, and records to determine the character of the natural landscape. This information could be used to establish datum points for studies in climatic change, the extent and rate of soil erosion, and changes in plant cover.<sup>13</sup> Olson had B.S. and M. S. degrees in geography from the University of Chicago. She had studied at the London School of Economics and had worked with the American Geographical Society before taking the job with the Soil Erosion Service.<sup>14</sup> In addition to supervising the work of the section, Olson published articles from the research work in *Agricultural History*, *Geographical Review*, *Nature*, and *Soil Conservation*.

Due to the need for geographers to help with the war effort during World War II

Another person in technical and informational work in the early history of the Soil Conservation Service was Charlotte Whiteford, later Charlotte Colton. Whiteford was elected to Phi Beta Kappa and then earned an M. S. degree in botany at Ohio State University before taking a job as a secretary with the soil science staff at the SCS office in Zanesville, Ohio in the mid 1930s. Her scientific training served her well in working with the staff. J. Gordon Steele, a soil scientist who had been in a plant ecology class with her at Ohio State, found his former classmate at the Zanesville office. In the late 1930s Steele was involved in publishing SCS reports entitled "Erosion and Related Land Use Condition," concerning the various SCS project areas. He recruited Whiteford to come to Washington as an assistant soil technologist to work on the reports. The job required both knowledge in soil science and editing. Whiteford took courses in editing and soil science in the USDA graduate school. At least one of the reports, *Physical Land Conditions on the Leatherwood Creek Demonstration Project, Lawrence County, Indiana*, included her as an author. Charlotte Colton continued to work as an editor, especially on soil surveys, and eventually became head of the publications staff of the Soil Conservation Service. She retired in the 1990s.<sup>17</sup>



The work of SCS in farm planning, soil the field, especially those interested in pro-  
cessing upward in the organization, know



federal government was to provide a federal work force reflecting the nation's diversity.

In 1973, about a year after the passage of the Equal Employment Act, women occupied approximately 11 percent of the permanent full-time positions in the Soil Conservation Service. Eighty-nine percent of the women were in clerical fields, 5.3 percent in administrative and technical fields, and a scant 0.2 percent in professional fields. The average grade was 4.86.<sup>23</sup> At that time women comprised about 20 percent of USDA's work force and 40 percent

Stevenson became the first woman district conservationist on October 12, 1975 at Welton, Arizona.<sup>26</sup> As of July 1991 there were 185 female district conservationists out of a total of 2,478 for the agency.<sup>27</sup> Four women have been have been state conservationists and the director of the Pacific Basin area is a female.

Various professionals in staff positions support the field operations of SCS. The changes brought on by the Equal Employment Act gave women who are interested in agriculture and natural resources opportu-



56 computer clerk  
53 contract specialist

*Report of the Chief of the Soil Conservation Service, 1935. U. S. Department of Agriculture, Washington, DC.*

W. C. ... showed 3,152 of the 12,825 per



## Endnotes

- <sup>1</sup> James Wilson to W. J. Sewell, December 15, 1897, Secretary's Outgoing Letters, Records of the Office of the Secretary of Agriculture, Record Group 16, National Archives. Quoted in Gladys L. Baker, "Women in the U. S. Department of Agriculture," *Agricultural History* 50 (January 1976): 190.
- <sup>2</sup> Quoted in Earley Vernon Wilcox, *Tama Jim* (Boston, Mass.: Stratford, 1930), p. 37.
- <sup>3</sup> Vivian Wiser, "Women Scientists in
- <sup>10</sup> *Keepers of the Land* (South Carolina Association of Soil Conservation District Supervisors, 1972), pp. 39-43
- <sup>11</sup> Quoted in R. Neil Sampson, *For Love Of The Land: A History of the National Association of Conservation Districts* (League City, Texas: National Association of Conservation Districts, 1984), p. 51.
- <sup>12</sup> Sampson, *For Love of the Land*, pp. 49-71.
- <sup>13</sup> *Report of the Chief of the Soil*



enclosed with Joan S. Wallace to Dale E. Hathaway, August 23, 1979, "Civil Rights," Record Group 16, Records of the Office of the Secretary of Agriculture, Washington National Records Center, National Archives and Records Administration.

<sup>22</sup> Federal Personnel Manual System, FPM Letter No. 713-27, June 28, 1974, Ibid.

<sup>23</sup> S. B. Pranger to Robert W. Long, "Reports of Progress in Equal Employment Opportunity," May 15, 1973, Joseph R. Wright to Robert W. Long, "Progress in Equal Employment Opportunity, September 5, 1973, Ibid.

<sup>24</sup> Joseph R. Wright, Jr. to Robert W. Long, October 18, 1974, "Civil Rights," Ibid.

<sup>25</sup> R. M. Davis to Robert W. Long, November 26, 1975, "Civil Rights," Ibid.

<sup>26</sup> R. M. Davis to Robert W. Long, November 26, 1975, Ibid.

<sup>27</sup> Statistics from employment data bases, Personnel Division, SCS, Washington, DC.

<sup>28</sup> Statistics from employment data bases, Personnel Division, SCS, Washington, DC.

<sup>29</sup> Information supplied by Curtis Sharp, National Plant Materials Specialist.

<sup>30</sup> Statistics from employment data bases, Personnel Division, SCS, Washington, DC.

## Small Watersheds and the USDA: Legacy of the Flood Control Act of 1936

Reprinted from Rosen, Howard, and Martin Reuss, eds. *The Flood Control Challenge: Past, Present, and Future*. Proceedings of a National Symposium, New Orleans, Louisiana, September 26, 1986. Chicago: Public Works Historical Society, 1988. pp. 67-88.

by Douglas Helms,  
National Historian, Soil Conservation Service

The Flood Control Act of 1936, followed by the Flood Control Act of 1944 and the Watershed Protection and Flood Prevention Act of 1954, made the U.S. Department of Agriculture (USDA) one of the federal participants in flood control work. The act initiated the most thorough examination yet of agriculture's relationship to flooding. The period of study and investigations of watersheds springing from the 1936 act affected the structure of future water resources programs in USDA. The experiences of the earlier period were incorporated in the provisions of the 1954 act, the legislation under which most of USDA's flood control work has been carried out.

While this paper will not concentrate on individual projects and field activities in flood control, a general idea of the programs that resulted from the process begun in 1936 will help in understanding the events of the intervening years. The Agriculture Department's small watershed program, as it has come to be called, is generally limited to upstream tributary watersheds of less than 250,000 acres. Many of the projects have utilized combinations of floodwater-retarding structures, channel modifications, and other engineering works to reduce flooding along streams. The department has generally provided financial assistance for these aspects of flood control projects. USDA also offers assistance often

involved in 22 percent of the projects, recreation in 19 percent, municipal and industrial water supply in 12 percent, fish and wildlife habitat enhancement in 7 percent, and irrigation in 7 percent. Since the Flood Control Act of 1944, the department has been involved in 1,387 projects covering more than 87 million acres.

The nature of these projects has been shaped to a certain extent by the results of scientific research and technological developments. To an equal or greater degree they have been influenced by attitudes--attitudes about the interrelationships of land cover, soil erosion, and flooding; attitudes about the most desirable working relationship between federal, state, and local entities; attitudes about who should benefit from and who should pay for flood control projects; and attitudes about small watersheds in comprehensive river basin planning. Such attitudes influenced the flood control legislation for upstream work. But the legislation left leeway for administrative decisions. Thus, changes in attitudes on how the program should be operated have been important and likely will continue to influence the program.

Underlying the decision to have a flood control program in the headwaters, the upstream tributaries, or the little waters was the belief that humans, through their activ-



bears away with ye swift current down to  
brooks & rivers whose banks it overflows."<sup>1</sup>

The question of the scientific relationship  
of forests and flooding entered the public  
policy arena in the late nineteenth and early  
twentieth centuries. Therefore, he believed, the

The Civilian Conservation Corps helped  
another new conservation agency, the Soil  
Erosion Service, later the Soil Conservation  
Service (SCS), begin its work. The CCC  
camps, as well as the Works Progress  
Administration, later followed Hugh Ham-

rotations, and improved pastures and woodlands with controlled grazing to maintain a healthy ground cover. Soil conservationists came to call this package of measures land treatment. In addition to maintaining productivity and farm income, soil conservationists believed that land treatment on a watershed basis helped to reduce the height of floods in the small tributaries. As they began setting up watershed-based demonstrations, they also began to make provisions to measure the influence of land treatment on streamflow.<sup>7</sup>

Another influential New Deal figure who emphasized land treatment on farmlands as a part of river basin development was Morris Cooke. He had more influence with President Franklin D. Roosevelt than other advocates of the same idea. As administrator of the Rural Electrification Administration (REA), Cooke promoted the publication of *Little Waters: A Study of Headwater Streams and Other Waters, Their Use and Relations to the Land*, which was issued by REA, SCS, and the Resettlement Administration. In his presidential message transmitting the report to Congress, Roosevelt held that disastrous floods "originate in a small way in a multitude of farms, ranches, and pastures." National plans should not neglect major rivers in favor of the little waters, but the plans should "envisage the problem as it is presented in every farm, every pasture, every wood lot, every acre of public domain."<sup>8</sup> The Water Resources Committee of the National Resources Committee tried to counter what they regarded as a very unscientific view with their own publication *Low Dams: A Manual of Design for Small Water Projects* (1930). The clim

reforestation is so good of itself that one must naturally wonder why it should be ruined on the rocks of overstatement, overpromise, or undervaluation of scientific principles."<sup>10</sup>

The Upstream Conference, another of Cooke's ideas, was held three months after the passage of the Flood Control Act of 1936 to discuss implementation of one of the act's significant provisions.<sup>11</sup> The legislative journey of the Flood Control Act of 1936 began in response to the spring floods, but emerged as a national policy on flood control. To expand the national policy providing for "investigations and improvements of rivers and other waterways" to the entire hydrologic unit, an amendment on the floor of the Senate added the phrase "including watersheds thereof." The amendment also assigned authority to the secretary of agriculture for "investigations of watersheds and measures for run-off and water flow retardation and soil-erosion prevention on watersheds."<sup>12</sup> In submitting these amendments to the White House, Senator Carl Hayden of Arizona had characterized them as "showing how I think the flood control bill should be amended to conform with the president's message on *Little Waters*."<sup>13</sup> With the support of the White House, the amendments were included in the final bill.

In addition to Joseph Arnold's excellent analysis (in *The Flood Control Challenge: Past, Present, and Future*, edited by Howard Rosen and Martin Reuss) of the complicated sequence of events leading to the passage of the act, one other factor should be mentioned. Earlier Hayden and other Arizona politicians had sought the assistance of SCS in controlling floods on



to promote the upstream program in 1936 when the occasion arose.<sup>14</sup>

After Roosevelt signed the bill, Secretary of Agriculture Henry A. Wallace decided to neither assign responsibility to a single bureau in the department nor establish a large flood control office. The various bureaus would do the technical works while a small group in the secretary's office, the Office of the Land Use Coordinator, under Milton Eisenhower, would coordinate the work. The chiefs of the Soil Conservation Service, Forest Service, and the Bureau of Agricultural Economics formed an advisory committee.<sup>15</sup> The act left much to administrative decision, but it was generally understood that the Department of Agriculture would make a survey of flood and sediment damages, devise a remedial plan, and submit the plan to the president and then to Congress.

But the surveying and approval did not proceed quickly. Not until May 1940 did Agriculture Department officials believe they would be ready for the action part of the program. Field survey work had been completed on eleven watersheds, and these reports were undergoing technical review in the department. After three or four surveys had been coordinated with the plans of the Corps of Engineers, it was anticipated that the reports would be submitted to the president for allocation of the \$4 million already appropriated.<sup>16</sup> But it would be more than a year, October 1941, before USDA submitted a report on the Los Angeles River to Congress. After World War II interrupted the work, USDA reached an agreement with the Bureau of the Budget to concentrate on surveys nearest to completion and to suspend flood control work on July 30, 1943.<sup>17</sup>

By September 1944 the department had completed 154 preliminary surveys covering nearly 1.25 million square miles. Thirty surveys revealed insufficient benefits in flood control and sediment reduction to warrant detailed surveys. Of the 124 calling for detailed surveys, 18 had been completed and submitted to Congress for authorization. USDA recommended eleven of the

watersheds be funded under the flood control acts. Of the remaining seven that did not have sufficient flood control benefits, USDA suggested that six should be funded under other authorities because the suggested program would benefit the watershed.<sup>18</sup>

Certainly Congress and the Department of Agriculture in 1936 envisioned some work in the field, not just completion of reports, after more than five years. In the history of flood control work in USDA, the delay is important for our consideration. One must wonder whether the history of flood control activities would have been different had the department managed to get surveys approved and to undertake field operations in a number of projects before the onset of the war.

The organizational structure of the flood control survey work probably was a major reason for the delay. The idea of coordination had not worked. Arthur Ringland, a career Forest Service employee who had studied headwaters control in Europe, served as chairman of the Flood Control Coordinating Committee of the Office of the Land Use Coordinator. After several years of dealing with the problems, without much authority, he stated that "the flood control program is the victim of institutionalism at its worst." To correct the "confusion and diffusion of responsibility," he said there should be a department-level official with administrative authority. The Forest Service and Soil Conservation Service should have "straight line undivided responsibility and authority for all flood control project work in the field of whatever character."<sup>19</sup>

The ill-advised organizational decisions accentuated the difficulties that naturally came with a new function. The 1936 act stated that benefits should exceed costs. Some work had been done on evaluating on-farm conservation measures, but the department had a new task in evaluating the downstream or off-site benefits.<sup>20</sup>

There was another need for information and analysis--the need for hydrologic

information for the small watersheds. In late May 1936, less than a month before the passage of the flood control act, the National Resources Committee published "Deficiencies in Basic Hydrologic Data," which called attention to the need for information on rainfall and runoff to

protect and retain the valuable bottom land.<sup>23</sup> Since flood control surveys by a federal agency were a prerequisite to financial assistance, Oklahoma would have them--one each by the U.S. Army Corps of Engineers, the Bureau of Reclamation, and the Department of the Interior.<sup>24</sup>



the source of this controversy by making possible hydrologic and economic studies of unprecedented scope and intensity."<sup>28</sup> Field and plot studies often showed dramatic increases in infiltration on pasture and woodland compared to bared land. But the field- and plot-sized results could not be extrapolated to an entire watershed. On thin soils, floodwater came from subsurface, as well as surface, runoff. Thus, land treatment measures to enhance infiltration had limitations in preventing floods. It was true that watershed characteristics had an influence on flooding, but vegetation and land treatment were only part of the characteristics. The combined hydrologic and economic studies found that watershed treatment reduced flood and sediment damages by as much as 40 percent in some cases, but as little as 5 percent in others. Generally the benefits of conservation practices to increased income exceeded flood and sediment damage reduction benefits of the program. The flood control benefits, according to the surveys, were not

storm runoff and reduce peak discharges."<sup>32</sup> By mid-1949 they had completed some twenty-five of these structures. Completed sub-watershed plans included another 410 structures which could store 227,385 acre-feet of water.<sup>33</sup> When this matter came to the attention of the solicitor in the Department of Agriculture, the ruling was that SCS did not have authority to build such structures.<sup>34</sup>

This development was related to the manner in which the reports were approved. The approved congressional documents outlined a general plan of remedial action, but were not written in legal language. Thus, the reports were subjected to a great deal of interpretation as to what activities had actually been approved for federal expenditures. Within the Agriculture Department, the solicitor held that the congressional documents did not approve floodwater-retarding structures. To correct this problem, USDA and SCS went before the agriculture subcommittee of the House

Service would have had great difficulty in differentiating land treatment under the flood control act from the agency's other field work under the Soil Conservation Act of 1935. Conserving topsoil retained its primary place in the conservation mission, but there had been a trend, almost from the beginning, to include upstream structures in the program. The Soil Conservation Service's work with CCC camps had involved some small reservoir construction. As Lowdermilk's plans for the upper Gila indicated, some elements in the Conservation Service were not averse to including floodwater-retarding structures. Even before the passage of the 1936 act, the research division of SCS had expanded its runoff studies from plots to natural watersheds.

secretary's office had changed to one that was more receptive to flood control in rural areas as part of the Agriculture Department's mission.<sup>39</sup>

Now that the Soil Conservation Service had legislative authority to include flood control structures in the eleven authorized projects, the proponents of this type of USDA/SCS program could look forward to a favorable reception for their inclusion in other projects to be authorized by Congress under the provisions of the 1936 act. This, however, was not to be the future of the flood control program in the Department of Agriculture. After the war there continued to be difficulties in completing surveys and forwarding them to Congress. USDA seemed about ready to submit several plans to Congress in 1949 when the secretary's